THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

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MOTOR-VEHICLE BOYCOTT PLANNED

New York, April 1.—There has been a pretty how-de-do among several of the local dealers going on recently over the struggle for the horse and carriage trade advertising whereby the publication of automobile news has been the bone of contention and lever sought to be moved in favor of effete equine and vehicle patronage. The telling of the story will show how little regard the daily press has for automobilism and the automobile trade, at least until the motor-vehicle trade papers have boomed it into undeniable recognition just as the cycle journals had to do in the early days of the bicycle.

But perhaps this shortsighted policy of today may bring its punishment at the hands of the trade later on and the unjust treatment of the automobile in favor of the horse may some day look for patronage from a trade that will have annoyingly good memories of the contemplated

freeze out of the motor-vehicle boom incidental to this story.

Short Sighted Policy

It seems that the daily (The Herald) hitherto supposed to be most friendly to the encouragement and publicity of automobilism in its news columns also happens to carry the bulk of the horse and carriage trade advertising. The advertising solicitor of a rival (The Sun), hitherto not so well fed with the plums of this variety of paid publicity, noted this automobile enthusiasm of its envied rival and planned a coup.

Jealousy Stirred Up

It was an easy matter to stir up jealous resentment among the equine vehicle purveyors by calling their attention to this booming of the horse's hated rival. A promise to practically smother all automobile news and the offer of certain pecuniary advantages in rates were thought sufficient to make good the coup. Another rival (The World), however, learned what was going on and raised its rivals' bid by giving a dinner to the carriage magnates and making still more liberal offers and still more extreme auto-restrictive promises. Still another (The Journal), a traditional rival of the dinner-giver in the yellow journal game, jumped into the fight to beat out its saffron competitor, as usual, at any cost, money being no object.

The Unsatisfactory Result

The result of it all was that the carriage barons were swelled up to become press dictators and called off their old organ so effectively with threats of withdrawal of advertising patronage that the word went the rounds of the sporting department to go easy on all automobile news except that which "the old man" cabled in pursuance of his present hobby.

So it is that so far as at least one powerful metropolitan journal goes, automobilism, on this side the water, will have to look to its real friends in the trade press for support unless it cares to trust to other daily papers, which only failed to eliminate news of the motor-vehicle age from their news columns through not being able to pull off the coup they had planned.

FROM THE FOUR WINDS

AN ABSURD TARIFF RULING

Washington, D. C., April 1. — The Treasury Department has received a letter from J. R. Roosevelt, of New York, inquiring whether an automobile, which he desires to take to England with him for use there for a few months, can be brought to the United States free of duty under the proviso of paragraph 697 of the present tariff act, regarding the free reimportation of personal effects taken abroad by residents of the United States. As it appears the automobile is of foreign origin, the department holds that it would be liable to duty on reimportation within one year under the provisions of paragraph 909 of the customs regulations of 1892. If used abroad by Mr. Roosevelt for one year or more, it would be entitled to free entry as a household effect under the provisions of paragraph 504 of the present tariff act.

An automobile is in no sense a personal effect within the contemplation of said paragraph 697, as personal effects are confined to wearing apparel, articles of personal adornment, toilet articles, and similar articles, and the department ruled, under date of May 20, 1898, that the proviso in paragraph 697, regarding personal effects taken abroad by residents of the United States, is to be construed as limited to personal effects of the character named in the paragraph and such as are analogous thereto.

ON THE FLORIDA BEACH

As a royal road of travel, the great Ormond beach has seen first and last almost its full share of pleasure awheel, says the Jacksonville News. The native "mule-hitch," some years ago, started the procession, but the more correctly equipped "trap and pair" soon entered the race, and was a winning favorite at the first

post. The second turning found the "brake and four," the third a two-wheeled affair with pneumatic tires and a high gear, called a bicycle. Today the race—proverbially to the swift—is won out by that new competitor—the automobile.

In Florida there are not many localities where an automobile can move along with a happy heart inside the boiler, but on the Ormond beach, with a speedway forty miles long and a footing of adamantine sand, it gives all comers a disgracefully generous handicap. All of which is merely apropos of saying that Mr. C. W. Seamans of Brooklyn, who brought his automobile south with him this season, recently reeled off on the Ormond shore boulevard something like three miles in double the number of minutes. For easy-going, day-before-yesterday Florida, this is about as rare a thing as a shooting star in purgatory.

DE GALLIFET'S STATEMENT

In speaking on a motion in the French chamber of deputies, for the purchase of additional horses for the army, Minister of War Gallifet made a statement in substantially the following words:

"The remounting actually takes 13,000 horses every year, and the army loses a corresponding number. That means a great number for the country. And the production of horses is decreasing day by day. But despite this fact there are still enough horses for the artillery and commissary branches of the army, and even for the cavalry, but not if they had to be used in a war of long duration.

"As for transport horses, I judge the day is not far distant when we can remedy their scarcity, through the progress which the automobile has made, owing to the intelligent progressiveness of our officers. Such is the report from Chalais."

"There is one point which means everything," says Le Velo, in commenting on the utterance. "It is a small one, but nevertheless an important one. Even now the automobile has its little role to play in the army's maneuvers. The motor carriages of our chauffeurs facilitate the going and coming of the high officers of our staff on the field of operation, during the maneuvers, while a humming squad of motocyclists are made useful in carrying orders, hither and yon, to a distant point either for the purchase of a package of cigarettes or for a chicken to reinforce the meal furnished by the commissariat. Even in Paris we have several motocycles attached to the military service.

"But a feature much more interesting and much more worthy of consideration is the late trials of the Scotte trucks for their suitability for restocking post, city or fort with arms, ammunition and food.

"These trials, pursued for several months, secretly but profitably, will amount to something, for today we see them approved by the minister of war as showing the motor vehicle to be fit for future service. The war automobile is on the way. It cannot be stopped."

MANY GOOD ROADS DINERS

New York, April 1.—Over sixty seats have already been taken for the dinner the Automobile Club of America is to give Gen. Nelson A. Miles and his fellow members of the transcontinental highway commission at the Waldorf-Astoria on Monday evening.

A MOTORISTS TROUBLES IN TURKEY

Alas a day! and alack!

To run a motor vehicle in Turkey involves as many troubles as to run a harem in Utah.

Paul Chaillot, who has been traveling in the Orient in the interest of a French manufacturer, found no difficulties in the home of the lotus and the pyramids, but when he reached the land of the Sublime Porte, he was surely in trouble. He found that his gasoline quadricycle had been confiscated by the custom house authorities. From the official notification of this fact he gleaned the cheering information that the confiscation of the vehicle was because forsooth, it "contained electricity." He thought it would be an easy matter to show the Turkish officials the error of their way and get his quad released, but, alas! the Turkish officials never err—officially—and his vehicle officially contained the prohibited fluid, despite the fact that scientists in general are not yet cognizant of the

method by which electromotive force can be generated from gasoline.

Now Monsieur Chaillot wishes he hadn't.

For the information of electricians he writes that the telephone is prohibited in the country of the unspeakable Turk, for the reason that it employs electricity, but that the telegraph, for some unaccountable reason, does not come under the same prohibition.

There remains one consolation for the can-do-no-wrong policy of the customs officials, and that is that an article, once having passed the custom house, no matter under what fraudulent representations, will be allowed to remain in the country unmolested.

SUGGESTIONS FOR THE AUTOMOBILE CLUB

The (Automobile) club is now wrestling with the question of club emblem designs, to be worn on club emblems and emblazoned on the vehicles. Those already submitted run too much to winged wheels of the much used bicycle pattern and give no suggestion of a self propelled vehicle. Here is a chance for some ingenious designer to win fame by furnishing the emblem for the national automobile organization of America.—New York correspondence of the Motor Age, March 29, 1900.

It certainly is a pity that the millionaire automobile club should languish for want of an emblem. The Motor Age is willing to sacrifice portions of its space to suggestions from any source and will have drawn any designs for which ideas may be offered by readers of the paper, and publish them.

To start the ball rolling, four designs

are offered with the compliments of the editor and illustrator of the Motor Age.

The first might be appropriate, except for the fact that the departure of the horse to the happy grazing grounds has been done to death. Moreover, the illustrator has suggested that the horses, save a favored few, can scorcely be expected to

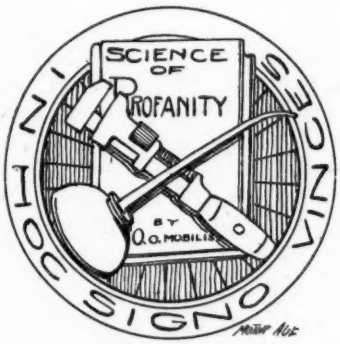
mourn deeply over the decadence of the vehicles to which they have been attached for many hours during most of the days of their lives. Indeed, the illustrator suggested that he might draw the reverse of the emblem and show the horse "winking the other eye."

Be that as it may, there is no doubt that the poor little English sparrow will mourn over the departure to pastures celestial of the faithful animal who has been so good a friend to him, in sunshine or in rain, in the parching heat of summer or the bitter cold and snows of winter. But his grief is too sincere to be made the subject of public parade, and, on that score, the suggested emblem would doubtless be rejected.

The third suggestion — well, it may please the unmarried men about town, but it is doubtful if even its appropriate-

ness would be enough to insure its approval by the membership at large of a club which numbers in its ranks many church-goers and many husbands, who, while they realize the efficacy of the "sign," are loth to admit it in the bosoms of their families and who fear that the adoption of the emblem, especially if it were "emblazoned on their vehicles," might lead to the asking of embarrassing questions. On the plea of policy, therefore, the emblem would probably be rejected.

As for the last suggestion, it is cer-



tainly out of the ordinary. Going back to the days of Mother Shipton and her prophecies, to the days of witches and goblins, is, indeed, a long hunt. A solution of the means of locomotion used by those ancient dames is now easy and that one of them should serve for the subject

of an emblem of the ancient but not—until recently—generally recognized means of locomotion, is highly appropriate. The suitability of the emblem seemed assured until there was wafted to the Motor Age office rumors that certain of the members of the Automobile Club were accustomed, occasionally, to see after some protracted sessions at that, or some other club, things quite as uncanny as that depicted herewith. Such members would naturally object to an emblem which would be—to them, at least—so decidedly suggestive.

The Motor Age fears, therefore, that its suggestions will all have been in vain. It does not despair, however, but looks to its readers for further suggestions.

THE HUMOR OF MOTERING

The members of the Electric club are cchuckling over a humorous paper read before the club one day last week on the subject of electromobiles by L. H. Rogers, says the Cleveland Plaindealer.

Disclaiming any desire to discuss with overwhelming solemnity the horse-power hours cooped up in a cubic foot of air compressed to a hundred atmospheres, or the torque developed by a man's wrist in turning the front door knob when running to give a fire alarm, Mr. Rogers insists that the future of the automobile can be forecast without burying the heart of a black chicken in a cornfield or behind a slippery elm tree on a cloudy night. He took a lady out riding the other day.

"How perfect delightful," said she. "I suppose you can run on like this forever if you want to?"

"Not quite so long as that," was the reply; "for even storage batteries have their limitations."

"What?" she exclaimed, "have you storage batteries in this carriage?" lifting her feet as if in danger of the shock.

"Never mind, though," she continued, reassured by the electrician's confidence, "I suppose in winter you have automobile sleighs, too?"

"Hardly," said the operator, "the wheels mus' go 'wound an' 'wound."

"Yes," she continued, "but you could put tiny little wheels'"—and between thumb and finger she indicated her no-

tion of the dimension—"right down on the inside of the runners near the ground, couldn't you?"

Mr. Rogers relates with a great deal of gusto his experience with a man who strolled into the charging station, looked the vehicles over, examined the storage batteries, swept his piercing glance over the switchboard, reading the figures on the ammeter and voltmeter, following with eagle eye the wires reaching from the knife switch to the vehicle, and then said: "Where do you put the gasoline to run her with?" Then he related a conversation with his milkman.

"What's this?" asked the man, "gasoline?"

"No," said Rogers, "juice." "Well," he replied, "that's different; does she shake?"

"Shake?" asked the auto man, "what do you mean?"

"What do I mean? If you had been in mine you'd know what I mean. I had a gasoline milk wagon built to order and started out one morning. By the time I got to my first customer the darned thing shook so that it had churned all the milk into butter. If I'd been in the dairy business I'd kept it, but I ain't, and when folks want milk I can't give 'em butter."

To add to the humor of the case, the Plaindealer, the day after the appearance of the foregoing, contained a vigorous letter of protest from a man who asserted that Mr. Rogers was the agent for a certain line of electric vehicles and that he was endeavoring to make the public think that there was nothing in the world that was the equal of the electric, whereas, the said Rogers had been seen on divers and sundry occasions stalled with his electric and under the necessity of being drawn home by plebian horses. If such be the case, then Mr. Rogers is deserving of sympathy, not alone on having wit enough not to watch his watt meter or not having a reliable carriage, but of having a jealous competitor attempt to puncture the humor of his essay, which, at least, was up to standard.

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ASTER MOTOR AND CARBURETTOR

In view of the introduction of the Aster motor on the American market by the Waltham Mfg. Co. of Waltham, Mass., a description of the motor and its carburettor is timely.

The motor is similar to the De Dion in many respects, being a compact, four-cycle, single-cylinder, gasoline engine. In outward appearance it is very like the De Dion with the exception of the radiation fins. In the De Dion these fins are cast with the cylinder, of iron, and present plane surfaces. In the Aster the fins are of copper and are forced onto the iron cylinder. In addition they are corrugated, to add to the surface for radiation. (See Fig. 1.) Copper is chosen for the fins as its coefficience of conductibility is nearly three times greater than that of iron.

The weight of the motor is about sixty-five pounds.

The carburettor of the Aster is very simple, and, at the same time, very effective. A copper cylinder (See Fig. 2) holding about nine pints of gasoline, is provided. This is surmounted by a dome also of copper. The supply of gasoline is admitted through tube A. A cork float, F, rides on the surface of the oil. This float F is provided with the perforated plate P, which connects with the tube C. Surrounded by this tube C is a rod, at the lower extremity of which is the float B. Hot air from the exhaust enters the tube C through the holes seen at the top and is carried down to the bottom of the tube where it is forced out over the surface of the gasoline by the shape of the float B. The resultant gasoline vapor is carried through the performations in the plate P, through the wire gauze, M, which prevents back firing, and thence into the mixer, D., from which the mixture goes to

the engine through the pipe G. In cold weather a supply of the hot exhaust gas is admitted through the pipe T, escaping

Figure 1.

through the pipe L, to assist in heating the gasoline to the proper temperature.

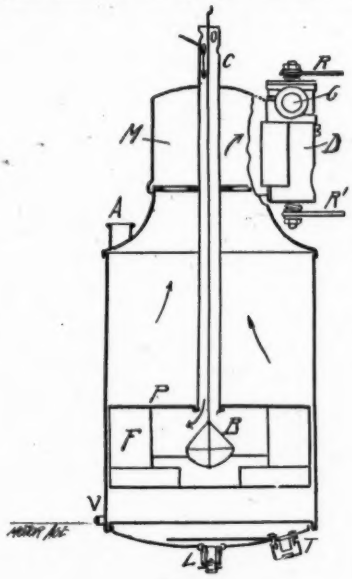


Figure 2.

The mixer (see Fig. 3) is a small copper cylinder provided with two openings, A and B, placed at different heights, which are covered with wire gauze. This cylinder forms a sleeve around another cylinder provided with similar openings, which, however, do not correspond in size with the openings in the outer cylinder. This sleeve is governed by the cock R R'. The opening A communicates with the

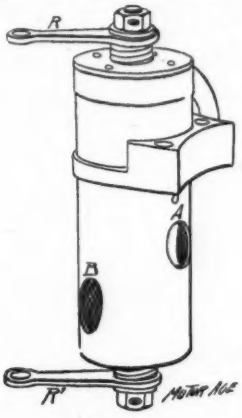


Figure 3.

interior of the carburettor and the opening B with the air.

Figs. 4, 5 and 6 show three different positions of these two openings. In Fig. 4 the hole A is wide open, admitting the maximum supply of gasoline vapor while the hole B is entirely closed, admitting no air at all.

By turning the cock R R', the admission of gasoline is kept the same while a supply of air is admitted in gradually increasing quantities until the point shown in Fig. 5 is reached, when the maximum supplies of both gasoline vapor and air

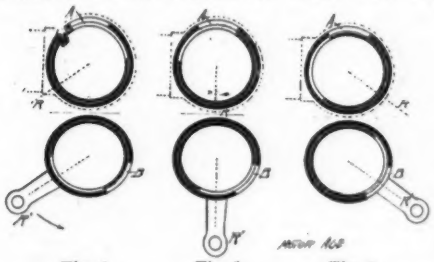


Fig. 4. Fig 5. Fig. 6.

are admitted. By turning the cock R R' still further the supply of gasoline vapor is gradually diminished and the supply of air maintained at the maximum until the point shown in Fig. 6 is reached, when the supply of gasoline vapor is entirely shut off. Thus, it will readily be seen, an explosive mixture of any degree of strength can be obtained by the manipulation of the one cock, instead of having a separate regulator for each.

ANSWERS TO CORRESPONDENTS

ADDRESSES FURNISHED

Editor The Motor Age:—

Will you give me the address of P. P. Nungesser, who wrote the article in the Motor Age of March 15, and that of Thos. Kane & Co.? — George R. Patton, Lake City, Minn.

Answer. — (1) Care of the Nungesser Electric Battery Co., Cleveland, O. (2) Wabash avenue and Randolph street, Chicago.

WANTS A LIGHT DELIVERY WAGON

Editor The Motor Age:—

I am considering the purchase of a light motor-vehicle of some kind for delivering goods in my line and would be glad if you would furnish the address of some manufacturer making something of this kind. L. N. Rottman, Terre Haute, Ind.

Answer.—Write to the St. Louis Motor Carriage Co., 1211-1213 Vandeventer Avenue, St. Louis, Mo.

SIZES OF SPOKES AND RIMS

Editor The Motor Age:—

Kindly inform us what size wire spoke anl how heavy a steel rim should be used for a two-inch pneumatic tire that would be suitable for a surrey to carry four to six persons, sizes of axles 1 1-16 and 1 1-8 inches. Would the same size spokes and rim that is used on the drive-about bike wagons be heavy enough? We will greatly appreciate this information.—Lee & Parker, Dowagiac, Mich.

Answer.—For a motor-vehicle suspension wheel, to carry the weight indicated, the steel rim should not be less than 3-32 inch and the spokes not less than 3-16 at the shank or smallest portion. The minimum diameter of such wheels should be thirty-two inches. Two-inch tires are entirely too small. Three-inch tires would be vastly better. Some of the manufacturers are making heavier tires for the rear or motor wheels and such should be ordered. For a vehicle sufficiently heavy to carry six persons, well made wood wheels with metal hubs will probably be found to answer the purpose better than wire wheels. For information on wheel construction see the articles on "Functions of Motor-Vehicle Wheels" in the Motor Age of March 29, 1900, and on "The Principles of Two Types of Wheels" in the issue of November 14, 1899.

LOOKING FOR CHEAP RUNABOUTS

Editor The Motor Age:—

We have made arrangements to handle the entire line of motor-vehicles controlled by C. J. Connolly of Rochester, which range in price from $750 up. We desire something cheaper and would be pleased to enter into correspondence with manufacturers. Can you tell us where we can get something that will meet our needs?--Senate Wheel Co., Corning, N. Y.

Answer.—Several firms began business by offering vehicles at a lower price than $750, but have found the necessity of increasing their prices. With the possible exception of the Loomis Automobile Co. of Westfield, Mass., the Motor Age knows of no firm that can furnish a vehicle at the price desired.

ASKS ABOUT HORSEPOWER

Editor The Motor Age:—

Will you have the kindness to tell through the columns of the Motor Age the reason why it is necessary to provide motor vehicles with such high horsepower? Also tell exactly what horsepower means, as applied to machinery.—J. E. Bartels, Cincinnati, O.

Answer.—To reply intelligently it is necessary to answer the second question first.

Mechanical energy is measured in horsepower and is the rate of doing work. It is the power required to lift 33,000 pounds one foot in one minute, or, which is important to remember, the same, constant power applied in any other ration. For instance, one horsepower will raise 16,500

pounds two feet in one minute, or 66,000 pounds one foot in two minutes, or 1,000 pounds thirty-three feet in one minute, or 66,000 pounds two feet in four minutes, or 1,000 pounds sixty-six feet in two minutes, etc.

A mechanical horsepower is greater than the power that can be exerted continuously by the average horse. The latter is equal to from two-thirds to three-fourths of one mechanical horsepower.

In engines the horsepower is spoken of in various ways which are often misleading to one with little or no knowledge of mechanics. First, there is what is called "indicated horsepower," which is the power exerted on the piston of the engine, but is not the power that is available for actual work. It is sometimes also called "actual horsepower."

Then there is "brake horsepower," which is the power that is exerted by the motor-shaft or crank-shaft—not by the driving wheels of the vehicle, as one correspondent assumed.

If an engine have an "indicated horsepower" of, say, five, this will be reduced to something in excess of four by the time it has been transmitted through the crank-shaft and will decrease from ten to twenty-five per cent more before it is transmitted from the driving wheels of the vehicle to the ground. Here, again, there is a further loss over the power of a horse, for the power absorbed by the wheels in driving the vehicle is greater than if they merely rolled over the ground as is the case when the vehicle is being drawn instead of being driven. But the reasons given so far are not the only causes why motor-vehicles require engines of high horsepower, as compared with animal horsepower.

The power of the average horse, as has been stated, is about two-thirds or three-fourths of a mechanical horsepower. In other words, the average horse can exert a continuous power capable of raising about 25,000 pounds one foot each minute. He can, however, exert a vastly greater power for a limited time, calling on his reserve strength.

In a gasoline engine the power can be exerted at its maximum all the time, but can never exceed it. Therefore a gasoline engine must have horsepower to carry the vehicle to which it is attached up all grades and over all bad stretches of road. A period of rest will not help it to recuperate.

Steam engines can be made to exert more than their nominal power—or the power of their boilers to generate steam—for a brief period, similar to the horse, but not to any such extent.

Electric motors are also capable of exerting an excess of power over the normal for a brief time, but are more limited in this respect than the steam engine and boiler. This gives another reason why motors should be of high horsepower.

Another reason is that the motor vehicle is heavier than the horse-drawn vehicle. It has the additional weight of motor and transmission gear and, in addition, must itself be heavier in order to carry the additional weight. This means that additional power is needed to drive it.

Finally, motor vehicles are expected to travel at higher rates of speed than horse-drawn vehicles, and consequently more power is required.

THE LONGUEMARE CARBURETTOR

Editor The Motor Age:—

Will you kindly describe or tell me where I can find out how a Longuemare carburettor is made?—S. A. Asquith, Waterloo, Ia.

Answer.—A description of the new Longuemare carburettor for heavy oils is given in this issue of the Motor Age and a brief description and illustration of the gasoline carburettor is added for your benefit.

ASKS FOR A CORRECTION

Editor The Motor Age:—

In your last issue you state that the writer "will sell and rent Orient machines." This is entirely wrong, so please correct the statement.

I have the sole agency for the product of De Dion, Bouton & Co. in the United States and carry a complete line of motors, tricycles, quadricycles and their parts. I do renting, repairing, storing and give automobile lessons at my store at 268 Massachusetts avenue, which, I believe, is the first store of its kind in

America. In time I will have branch stores in every large city.—Kenneth A. Skinner, Boston, Mass.

THE MUNGER TIRE

Editor The Motor Age:—

Will you please give a description of the Munger tire for motor-vehicle and tell where they can be purchased.—G. R. B., Cleveland, O.

Answer. — A complete description will be found on page 269 of the Motor Age for December 14, 1899. The cut shown on page 274 is the style of tire on which work is being done at Hartford, although none have been put on the market yet.

ANCIENT MOTOR-VEHICLES

Despite the fact that everyone knows that motor vehicles were built more than a century ago, still we are prone to class everything that dates back of the passing decade as ancient. It is in this sense that the vehicles mentioned in this article are called ancient.

In the Scientific American, in July, 1885, there appeared the following:

"Several efforts have been made to utilize electric energy through secondary batteries for propelling tricycles and light vehicles, but so far we have not seen anything beyond the experimental stage. Many inventors have also striven, with more or less success, to produce a mechanical motor depending for its movement upon the explosion of a gaseous mixture, composed of petroleum and compressed air. The most practical of these is, we think, that of Mr. Eteve, which was introduced last year into this country, but of which we now hear nothing. This principle, says the Electrical Review, has been applied to the propulsion of tricycles. And such a vehicle may be seen in the Inventors' Exhibition. It is stated that by the consumption of from three to five pints of petroleum oil per hour in the "velocipede," as it is called, sufficient power is generated to give the vehicle with its rider a speed of from ten to fifteen miles per hour. The generator contains a supply of petroleum, enough for a run of three or four hours, from which is evolved, by the aid of two small compressing pumps, the gaseous mixture for consumption in the two engines, in combination with the compressing pumps affixed to the frame of the vehicle in front of the driving wheels and seat. The ignition necessary for the expansion of the gaseous mixture is effected by means of sparks from a tiny electric machine, at the early part of the outgoing stroke of the pistons, in connection with cranks on driving wheels shaft."

In January of the same year, the Bicycling World contained the following account of a self-propelled, or partially self-propelled bicycle:

"L. G. Copeland of Phoenix, Arizona, has perfected and taken out patent for a bicycle which runs by steam. He gave an exhibition of its powers in Mechanics' Pavilion, San Francisco, Cal., December 21, and the few gentlemen present were united in praise of the invention. A reciprocating steam engine is attached to a the bar of a Star bicycle which connects the handle with the small wheel in front. Benzine is used for heating purposes, and steam can be got up in a few moments. At the present time the supply of fuel and water has to be replenished, every hour, but with anticipated improvements supplies for several hours will be provided for. Ninety pounds of steam can be carried, but the machine can be run with twenty pounds. The machine averages about five minutes a mile over any road. The pedals can be used in conjunction with the steam power whenever necessary and the speed will be increased accordingly. When the steam power only is used the pedals are brought into requisition as foot-rests. By the unscrewing of two bolts the entire machine can be taken

off and there remains the ordinary Star bicycle in its entirety. The boiler, water tank, engine, benzine tank and all appliances weigh only eighteen pounds. The engine is furnished with a quarter horsepower."

COPELAND'S ORIGINAL MOTOCYCLE.

This account was followed in March by another account, which was accompanied

by an illustration which is reproduced here. The second account reads:

"Our illustration this week shows the steam Star bicycle which has been shown throughout California, South and North, and which will be exhibited in the east in a very short time.

"This bicycle, it will be seen, is the regular Star pattern. The engine and boiler are planned so as to occupy very little space outside the lines of the machine. The engine proper weighed one pound and twelve ounces, including the driving pulley, and the speed is seven to one of the bicycle. The engine is capable of making 1,000 revolutions a minute. Enough water can be taken in the boiler to last an hour, and the power of the engine is enough to drive the fifty-one-inch bicycle about twelve miles an hour on the floor, or about one mile in eight minutes on the road; thus it will be seen that it would be quite an assistance to the feet in driving the machine. We presume that it would be necessary to avoid any serious falls, but the inventor claims that it will stand rough handling. By unscrewing a couple of bolts the engine can be removed, when there remains the Star bicycle, pure and simple.

"The inventor claims that he can so perfect the steam power that it will be perfectly practicable, so much so as a locomotive, and in the winter time when the riders are snowed in, the machines could be used for driving sewing machines, amateur workshops, etc."

One can scarcely repress a smile at the modest assertion that the engine "would be quite an assistance to the feet."

INDEX

LONQUEMARE KEROSENE CARBURETTOR

With a view to the production of an explosive mixture from the evaporation of heavy oil, such as ordinary kerosene or refined petroleum, M. Longuemare, the inventor of the well known carburettor called after him, has modified the design so that it can be used to effect carburettion from such heavy oil. The improved carburettor is illustrated in the accompanying drawings, in which Fig. 1 is a vertical section of the apparatus, Fig. 2 is a plan on top, Fig. 3 is a section of the wings fitted on the upper part of the apparatus, and Fig. 4 is a plan of this.

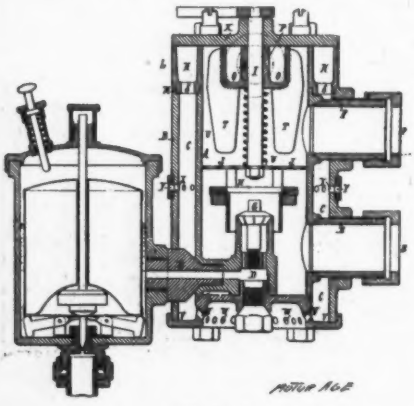


Figure 1.

The body, A, is formed of a double or jacketed casing, B, forming an annular cylindrical chamber, C, in the walls of which provision is made for three tubular connections, D for the admission of petroleum, E for the admission of air, and F for the explosive mixture inlet conduit to the motor, these tubular passages working in combination with the valves for effecting the introduction of the pe-

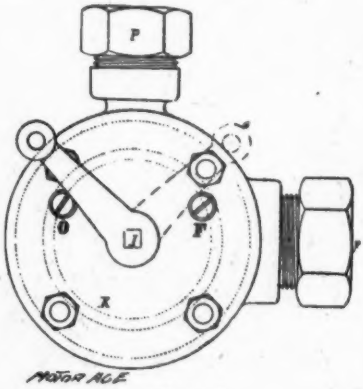


Figure 2.

troleum and the passage of the mixture, i. e., a distributor, G, and valve, H, the latter being actuated by a spindle, I, and surmounted by a screen or perforated plate, J, of metallic netting.

Between the cover, K, and the upper part of the body, A, is placed an annular

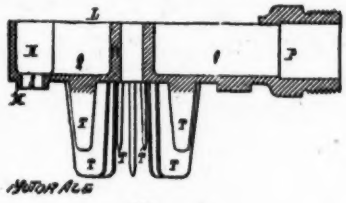


Figure 3.

part, L, united hermetically by means of a lower joint, M, with the body, A, and fitting into a recess provided for that purpose in the upper part of the body, A, the device thus covering the chamber, C, and being hermetically closed by the cover, K.

The part, L, consists of an annular chamber, N, and a central chamber, O, communicating with each other, and with a tube, P (Fig. 3), by means of a passage or tube, Q. The chamber, O, is provided in its center with a sleeve, R, through which passes the spindle, I, actuating the valve, H. The annular chamber, N, which is open at the top, is closed by the cover, K; while the bottom of this chamber is provided with a number of holes, S, communicating with the chamber, C, of the body, A, thus being established a communication between the chamber and the tube, P.

The central part of the annular device,

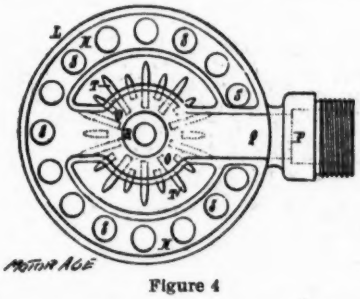


Figure 4

L, carries on its under surface, inside the chamber, U, radiating wings or plates, T, depending perpendicularly, and varying from each other, in height and width, for the purpose of providing a large contact surface for the explosive mixture, admitted to the chamber, U, for the purpose of distributing the mixture to the suction tube, F, of the motor.

At its lower end the annular chamber, C, is closed by a bottom, V, provided with a number of holes, W, which thus form a communication between the chamber and the outside air.

At about the middle of the height of this double casing, A, are provided air inlet holes, X, similarly arranged so as to allow the chamber, C, to communicate with the outside air, the latter communication being adjustably controlled by means of a ring, Y, provided with similar perforations and forming a kind of adjustable regulator.

The action of the carburettor is as follows: The hot exhaust gases from the

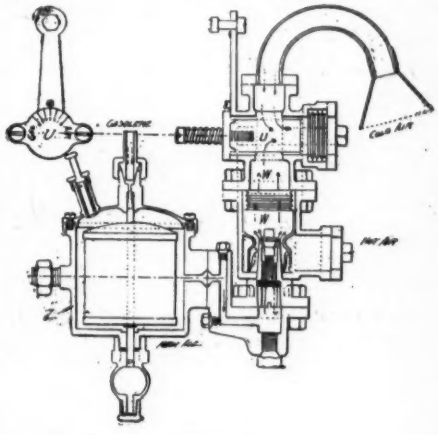


Figure 5.

motor enter through the tube, P, and passage, Q, into the annular chamber, N, and central chamber, O, of the part, L, thence passing through the orifices, S, and expanding in the annular chamber, C, the register, Y, being closed, that is, the orifices, X, being completely covered by the full parts of the ring, Y, the gases then pass to the bottom, V, of the chamber and finally escape through the orifices, W.

This circulation of the hot exhaust gases will result in imparting to the whole body of the carburettor, and especially the wings, T, of the part, L, extending into the interior of the chamber, U, a very high temperature which will greatly facilitate the vaporization of the oil, and mixed with air drawn in by the motor, the conditions being such that an

explosive mixture of normal composition and action is obtained.

In starting work, since the carburettor and the motor are cold at first, it is necessary to place underneath the bottom, V, some heating device, say a spirit lamp or the like, for the purpose of heating the apparatus to the required degree, until such temperature can be imparted by the hot exhaust gases which will result after a very short working of the motor.

In the case of such initial heating the regulator, Y, will be so turned as to leave the orifices, X, entirely open, which will facilitate the working of the heating device.

The Longuemare gasoline carburettor is the same in general principle as that used for heavy oils and has been in successful use for the past two years abroad. No interior provision is made, however, for heating the hydrocarbon. Its construction is shown in Fig. 6. Gasoline is contained in a supply tank and is fed into the tank Z, containing a float valve, which maintains the supply of liquid gasoline to the level of the line Y, after which the supply of gasoline is shut off by a needle valve. Naturally the gasoline is maintained at the same height in the carburettor, itself, as in the tank Z. It is then carried in atomized form into W by the suction of the engine, where it is mixed with hot air from the engine until it reaches U, where it mixes with a supply of pure air. At U a cylindrical member fits into the carburettor, this member being slotted in such a manner that by the turning of a lever attached thereto the supply of gasoline vapor may be increased and the supply of air decreased, or vice versa. The explosive mixture being thus completed, it is drawn to the cylinder of the engine in the direction indicated by the arrows, passing through a number of thicknesses of wire gauze to prevent back firing.

WORKING OF McINNERNEY GENERATOR

Since the publication three weeks ago of a description of the McInnerney generator for gas and gasoline engines, the Motor Age has been asked by a number of readers to give a more detailed description of the manner in which the generator is used.

FIGURE 1.

For the benefit of those who may not have read the previous article it may be well to repeat briefly what was said more

at length there and to reproduce the illustration of the magnet and keeper. To quote from the previous issue, the generator consists of two parts—a permanent magnet and a keeper. The permanent magnet is preferably bolted to a part of the frame and the keeper is attached to the fly wheel, and in the natural revolution of the engine the latter passes within one-sixteenth of an inch of the magnet in such a relative position that a spark is given inside of the engine to ignite the gas. The permanent magnet consists of a series of laminated plates and in contact with each end is a pole piece consisting of a series of laminae which are bent in a U shape, one limb in contact with the end of the permanent magnet and the other limb projecting at right angles to the plane of the permanent magnet and having wound around it a coil of wire which connects with the coil upon the other pole piece and is in circuit with the sparking device. The keeper consists of a series of laminae bolted to the fly wheel at any suitable point.

In the operation of the engine the keeper first travels from the toe of the permanent magnet towards the pole end. In consequence of this arrangement there is practically a short circuit of the permanent magnet through the keeper as the latter travels over the magnet, which tends to remove the flux from the pole pieces. This lowers the flux in the pole pieces to the lowest practical extent just prior to increasing it to a maximum, so that the rate of increase is very rapid, and as the generation of the current depends on the rapidity and magnitude of the change, currents of much greater energy are secured.

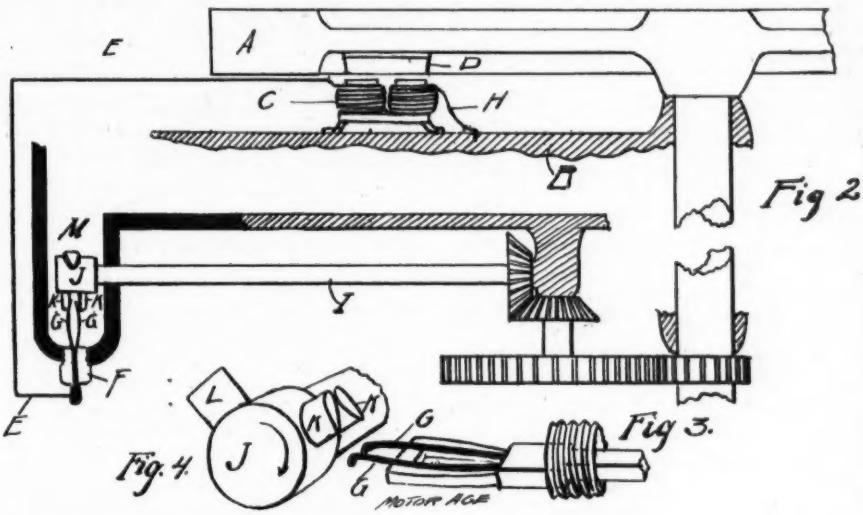


Fig 2

Fig. 4.

Fig 3.

In Fig. 1 are shown the permanent magnet and the keeper.

Fig. 2 shows the manner in which it is attached to the engine. In this figure, A represents the fly wheel of the engine, B the frame, C the permanent magnet bolted to the frame B, and D the keeper bolted to the fly wheel A. The insulated wire E leads from one pole of the permanent magnet to the insulated plug F, terminating in the sparking wires G, G, as shown in detail in Fig. 4. The wire H leads from the other pole of the magnet to the frame of the engine and through it to the shaft I which runs at half the speed of the motor shaft. The shaft I terminates in the member J, which is provided within the combustion chamber M of the engine with the shoulders K, K for producing the spark, and the "spreader" L.

The function of the spreader L is merely to maintain the wires G, G at the proper distances apart. As will be seen by referring to Figure 4, it is not set opposite to the shoulders K, K,

and does not therefore produce a spark at the end of the exhaust stroke as it would were it set opposite to K, K. It will therefore be left out of further consideration.

As the keeper D passes over the face of the magnet, the shoulders K, K form a rubbing contact with the wires G, G and as the current generated approaches its strongest point, the contact between the shoulders K, K and the wires G, G is broken and the result is a very hot spark.

On the Victor engine at the Chicago offices of Thomas Kane & Co. to which one of the generators is attached, a good spark was generated, the head of the combustion chamber being removed to allow of inspection, by a very slow turning of the fly wheel by hand, and after the head of the combustion chamber had been replaced and the engine was started, very easily, without, of course, the use of a primary battery.

One feature of the generator which is particularly advantageous is that there is no deterioration of the generator, but rather an increase of its efficiency, through the passing of the keeper over the magnet, up to the maximum of which it is capable. The generator is being made in different sizes and will doubtless be largely used on automobile engines in the not far distant future.

Of course the generator might be applied in different manners than the one illustrated. By making it give a jump spark, of which it is quite capable, it would be very easy to arrange the permanent magnet on the frame of the engine in such a manner that its position could be changed at the will of the engineer and in this manner the spark could be advanced or retarded to influence the speed of the engine.

In the Victor engine to which it was applied such variation of the engine is not necessary.

NUNGESSER CLOSED CIRCUIT BATTERY

The accompanying illustrations show, in detail, the construction of the closed circuit batteries made by the Nungesser Electric Batttery Co. of Cleveland, for use for igniting gasoline engines in motor-vehicles and launches.

The makers claim that this battery will give absolutely reliable results and that it can not polarize or weaken in the longest and hardest service.

As a closed circuit battery can be constructed only in liquid form, it is highly important that the cell should be constructed absolutely liquid tight. In addition to making the Nungesser cells proof against leakage of the liquid, they are also made air tight. It is therefore unnecessary to have the usual paraffine oil on the alkaline solution. The company makes the claim that where oil is used in portable batteries, such as are necessary for motor-vehicles, the paraffine, owing to the agitation to which it is subjected, soon coats the elements to such an extent that the internal resistance of the battery becomes so high as to render it unfit for use.

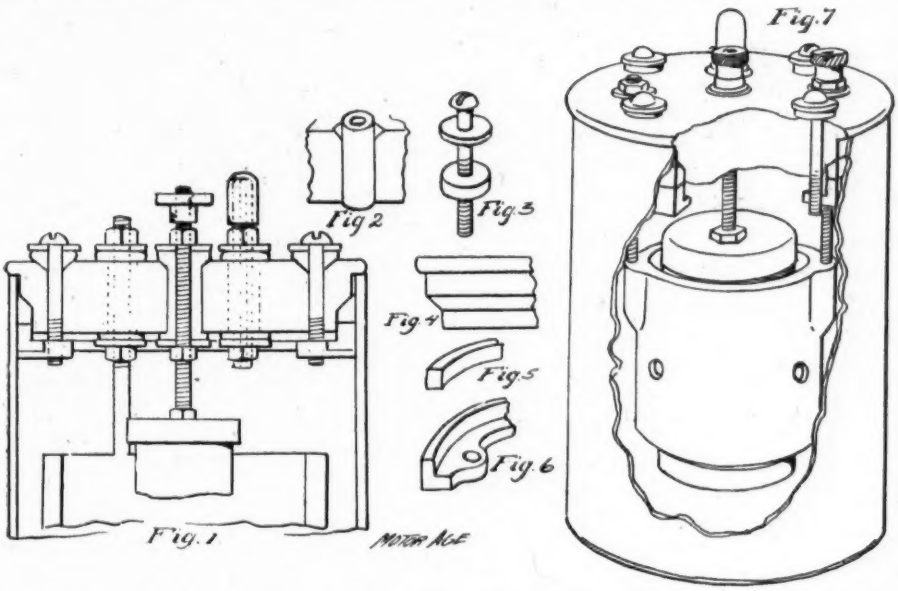
Referring to the accompanying illustrations, Fig. 7 shows one of the cells 4½ inches in diameter by six inches high. It has an electro-motive force of 9-10 volt and a current of ten amperes. The complete cell weighs seven pounds and lists at $2.50. A mileage capacity of not less than 3,500 miles is claimed for it.

The cell is made of a seamless stamped steel jar heavily enameled, inside and out. The cover is composed of vitrified porcelain and is shown in Figs. 1 and 4. Four round-head screws, Fig. 3, pass through the porcelain cover near the outer edge, as shown in Fig. 1 and 7. The screws raise and lower the malleable iron compression ring, Figs. 1 and 6. Turning the screws to the right raises the compression ring and compresses the soft rubber gasket shown in position in Fig. 1 and in section in Fig. 5. This compression, owing to the shape of the cover, forces the soft rubber gasket against the inside wall

of the steel jar with great pressure, making the cell absolutely air tight and liquid tight.

To provide for vibration of the elements, in portable use, soft rubber bushings are used in the cover, as shown in Figs. 1 and 2. These bushings make a perfectly tight joint, and at the same time prevent the absolute rigidity of the supporting copper rods carrying the elements, and avoid crystallization or breakage of the rods.

Bolted through the cover is a steel vent tube having a soft rubber cap to release any abnormal pressure.



From four to eight of these cells are used, according to the calls upon them and are connected in series, in connection with a special spark coil furnished with the set.

INDEX

FRENCH METHOD OF WATER-JACKETING

There are several novel and meritorious features about the construction of the French motor of which illustrations are shown below. The improvements have been applied to a motor of the Daimler type. The advantages that are claimed for the construction are, first, a greater efficiency for the amount of space occupied; second, more effective cooling, and, third, the ease with which the valves can be taken apart.

Fig. 1 is a sectional view of the two cylinders of the motor, while Fig. 2 is a sectional view through one of the cylinders, at right angles to the view shown in Fig. 1.

The two cylinders A A are cast in one piece, together with their water jackets. The annular water chambers B B are divided by partitions to reinforce the cylinders and provide places into which the bolts D D are screwed, the latter holding the breeches C C of the cylinders and water jackets in place. These breeches are cast in one piece, as shown in Fig. 2. This construction obviates the necessity of exterior bolts, making a very compact and, at the same time, mechanically correct construction, and allows of the cylinders being set very close together. It effectually cools the exhaust ports as well as the breeches and cylinders, through the area of piston travel.

A valve box G is placed on the side of

each breech (see Fig. 2), communicating with the cylinder by the wide duct F. At the lower part of this duct F is the escape valve E on the rod H, and held in place by the spring K, except when actuated by

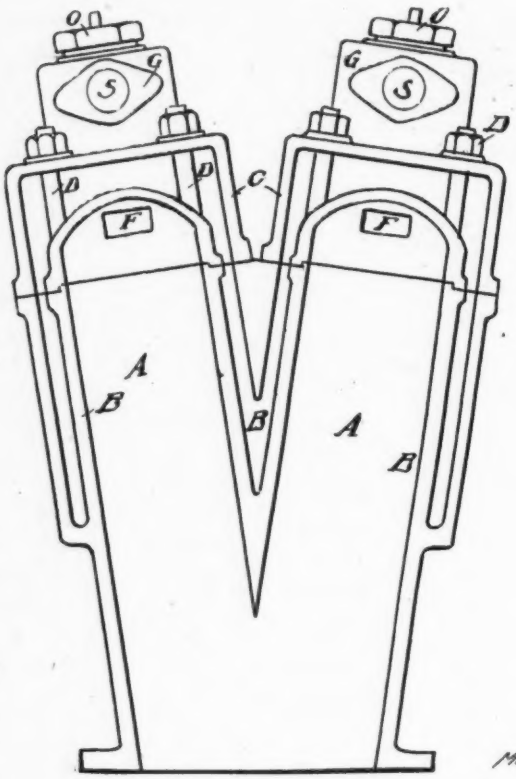
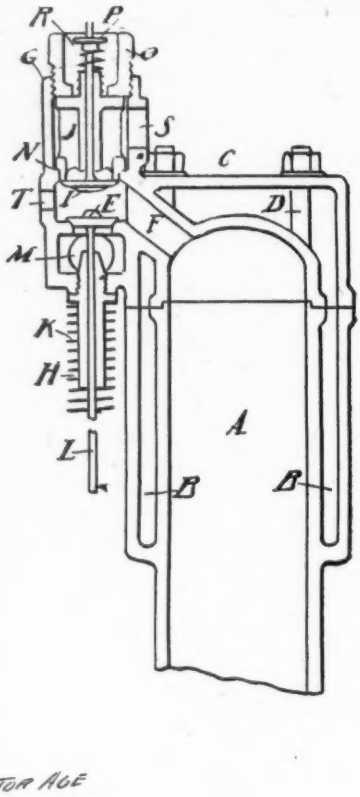


FIGURE 1.



MOTOR AGE

FIGURE 2.

rod L, at every second revolution, when the gas escapes through the tube M.

The admission valve I, on the upper side of the duct F, is governed by the rod R and the spring P, carried in the socket J, which is held against the shoulder N by the hollow, threaded plug O. By unscrewing this plug O the entire admission valve I can be removed and, through the aperture, the exhaust valve E can also be removed, by detaching the spring K.

The explosive mixture is admitted at S when the valve I is opened by the suction of the motor piston. The electric igniter is placed at T, in the usual manner.

The springs K and P are located outside the explosion chamber and will remain in good condition indefinitely.

AUTOMOBILE SUPPLY CO.'S BUSINESS

The accompanying illustrations show two styles of running gears for motor-vehicles which are being supplied by the Automobile Supply Co. of St. Louis, on which prompt deliveries can be made.

Fig. 1 shows the plan view and front elevation of the running gear for light road wagons. The front axle is 1¼ inches with 1⅛-inch swivel bearing, fitted with either balls or rollers, as may be desired, for either wood or wire wheels. Six-inch lever arms extend from these swivels and are connected by a rod ⅝ inch in diameter. From one of these lever arms ex-

tends another rod to the perpendicular steering rod which is provided with a steering lever. Wheels are thirty-four inches in diameter, if solid tires are fitted. Solid tires 1⅛ to 1½ inches are used or 2 and 2½-inch pneumatics.

The reaches, extending from the front axle to the rear roller bearings of the Borbein pattern, make a flexible connection for the reaches as well as for the springs which rest on them.

The rear axle is of cold rolled steel, 1⅜ inches in diameter; rear wheels are thirty-six inches in diameter. These wheels are keyed to the solid axle on one side and to a hollow shaft on the other, thus connecting with the differential gear which is of light construction.

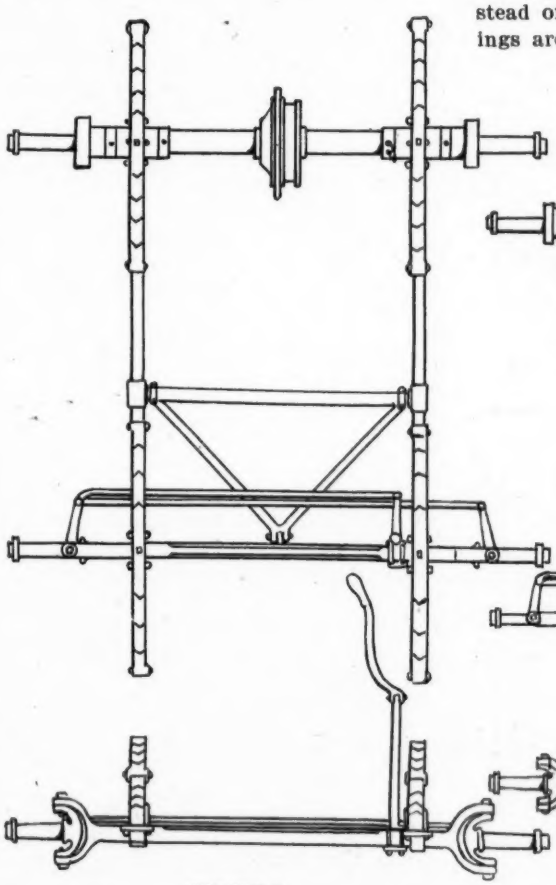


FIGURE 2.

Thirty-four-inch elliptical springs are used in the rear and are clipped to the flexible bearings, while a single thirty-six-inch elliptic spring is clipped to the front axle. On top of these springs is bolted an angle iron frame ready to receive the body. The motor, if gasoline or steam, is bolted to the angle iron frame, or, if electric, is hung on the rear axle and an additional support running from reach to reach.

This running gear with thirty-four-inch front wheels of wood, without tires, springs or angle iron frame, lists at $150. For the addition of springs and angle iron frame $25 is added. Solid rubber 1¼-inch tires cost another $42. Drawings for the body are furnished for $5.

Fig. 2 shows a running gear similar in general construction to the one just described, but intended for heavier vehicles, being provided with braces and four instead of three springs. The front bearings are 1¼-inch; rear axle 1½ or 1¾-

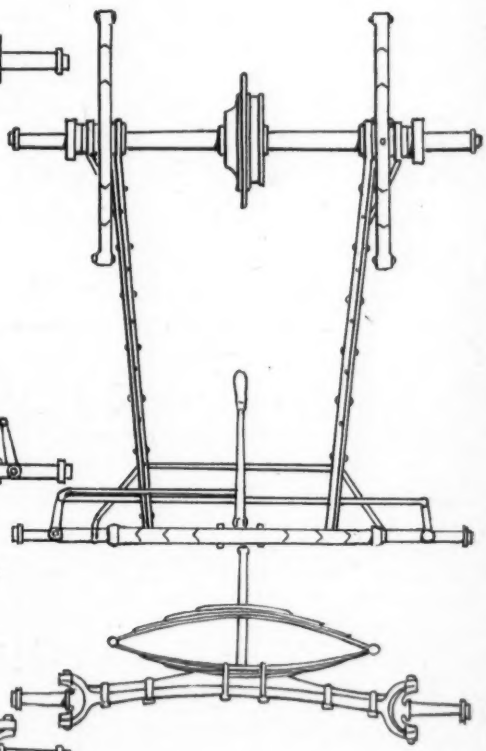


FIGURE 1.

inch. The price without angle iron frame and springs, $200, and with these, $225.

In addition to furnishing the running

gears, the company is also prepared to furnish motors of various types, together with drawings.

Electric motors with storage batter es are furnished in 1½ to four horsepower.

Steam boilers and engines, with all accessories thereto are furnished in four and six horsepower ratings.

Gasoline engines are furnished in two, three, four, six, and eight horsepower.

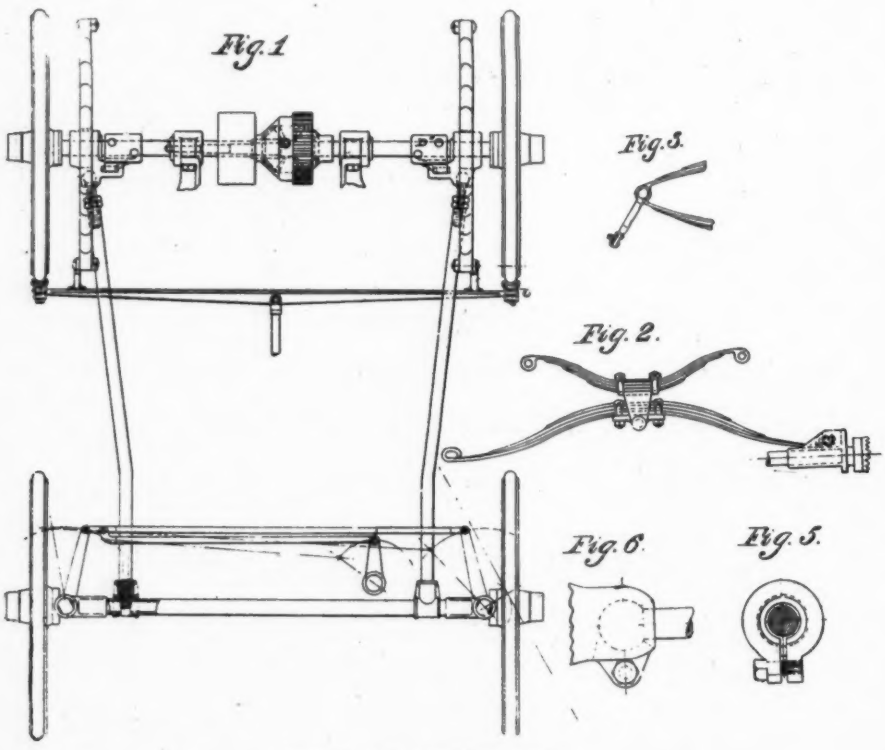
Transmission devices are also furnished, as well as drawings for various styles of bodies, and a repair outfit, consisting of all necessary tools in a leather case, an improved jack for raising the wheels, a foot pump, an electric hand lamp and a tire repair outfit. These are furnished separately also.

A. L. Dyke is general manager of the company.

THE PATENT OFFICE BUDGET

CLEVELAND CONSTRUCTION

Letters patent No. 646,081 to Elmer A. Sperry, Cleveland, Ohio, assignor to the Cleveland Machine Screw Co., same place.



CLEVELAND RUNNING GEAR.

Mr. Sperry is the superintendent of the company to which the patent is assigned and is an old hand at the automobile business and the company is numbered among the large makers of electric vehicles, to the construction of which the patent applies.

The patent itself is one of the blanket ones and covers a number of details which are not dependent on each other. The points covered are merely structural and can have no great effect on the in-

dustry at large, although none the less worthy of attention by those interested in the mechanical side of automobilism.

Fig. 1 shows the construction of the running gear preferred by Mr. Sperry, according to the patent specifications. Of the thirty-one claims allowed, several cover the construction of the divided axle for the rear wheels and the manner of mounting the differential gear thereon. The particular feature of the axle covered is the long telescoping of one section within the other with diameters of varying proportions, in order that the axle may support the load without reinforcement outside itself. The shoulders on the differential gear assist in performing this function.

Fig. 2 shows the method of supporting the body on the front axle. The illustration is sufficiently clear without any explanation.

Fig. 3 shows with equal clearness how the brake acting on the rear wheel tires is hung in eyes in the elliptical rear springs.

Figs. 4 and 5 show the method by which the reaches connecting the front and rear axles are joined to the latter by a universal joint, being rigidly attached to the front axle. A number of claims are allowed on this ball-and-socket joint.

CORLISS TIRE

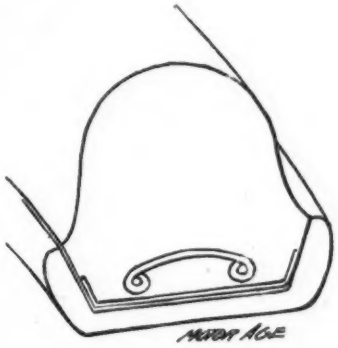
Letters patent No. 646,140 to William Corliss, Providence, R. I.

This is a modification of the tire briefly described two weeks ago in the Motor Age, but it has the further novelty of two or more inner tubes with an increase in the width of the flat tread. A reproduction of the drawings would add nothing to the value of this publication.

FIRESTONE'S TIRE

Letters patent No. 646,274 to Harvey S. Firestone, Chicago, Ill.

This is one of the seemingly endless schemes for securing a solid rubber tire to the rim. The illustration gives a good



idea of the method employed. The object of this construction is to provide a means of securing the tire in a manner that will not readily cut the tire. Provision is made for uniting the ends of the retaining band, the tire being made of a strip of rubber, the ends of which are butted together.

MOTOR RACING AND MOTOR PACING

THE CHAMPION-SKINNER MATCH

W. D. Gash of the Waltham Mfg. Company, maker of the majority of the motor tandems now used along the cycle rack circuits of this country, says, in regard to the limitations of the motors for motor tandem races: "I have noticed in the papers that motors in motor races and paced races would be limited, and, for the good of the sport, I believe that this should be a rule very strictly enforced. It is of course easy to make motors of greater horse-power than two and one-quarter, but the rank and file of the riders cannot secure greater horse-power motors than 2 1-4. Such increased power motors would not be practical providing the riders could obtain them, as the large motors are very expensive, are not guaranteed and very hard to handle, besides being likely to get out of order. In the race between Champion, who will use an Aster motor on an Orient tricycle, and Skinner, who will use a De Dion motor on a French

tricycle, both will be unlimited as regards horse-power, but this is a special race. Skinner has provided himself with what he styles a "professional motor," but Champion would like to have the race decided with motors which will interest the general public, those in daiy use, the 2 1-4 horse-power. Champion would prefer that the series be for road and track and long and short distance, in order that the efficiency of the motors might be demonstrated and also the ability of the rider. Champion will of course provide himself with motors to offset those used by Skinner and the courses for the races will be mutually agreed upon within a short time."

A SPEEDY CLUB RUN

New York, March 31.—Club runs were successfully inaugurated for 1900 today by the Automobile Club of America on its second attempt to force the season. Two weeks ago two intrepid chauffeurs, Bostwick and Schwarzkopf, fought it out in the snow from the Waldorf-Astoria to the Ardsley Casino, twenty-three miles away, Bostwick's gasoline vehicle beating Schwarzkopf's racing-built steam wagon by forty minutes.

Today the steam wagon people had it in for Bostwick, and their vehicle, this time engineered by S. T. Davis, was first past the post at Ardsley. What would have happened had Bostwick not lost ten minutes or more by a breakdown is problematical, and the battle between the two speedy vehicles is still far from decided.

Ten vehicles, two of them steam wagons and one of them a De Dion tricycle driven by George Isham Scott, completed the run. The times of the finishers were as follows, the previous record being 1 hour and 30 minutes:

S. T. Davis and assistant.....1:17
C. S. Weston with Frank Stillman, Jr.1:25
D. W. Bishop, Jr.....1:27
G. F. Chamberlin 1:29
A. C. Bostwick and Leon Blanchet...1:34
A. R. Shattuck with General G. M. Smith 1:45
D. H. Morris 1:50
J. C. McCoy 2:13
G. I. Scott 2:30
Jefferson Seligman and A. L. Riker..2:35

Mr. Scott on his tricycle was fully a quarter of a mile in the lead on Warburton Avenue, near Yonkers, when things went wrong and he had to push his machine afoot to the club house. Bostwick's running gear was also sadly out of kilter after his breakdown.

Leon Blanchet, Mr. Bostwick's guest, is one of the founders of the Automobile Club of France and will return to Paris on April 25. He will compete in the world's fair races.

Mr. Weston had one of the new Winton carriages of nine horsepower, as against the old six horsepower machines used by all the others except Davis, Morris and Scott.

At the luncheon it was decided that the next run should be on Saturday, April 14, to Babylon, L. I.

BOSTWICK NOT CHOSEN

New York, April 1.—It was expected that at its meeting on Tuesday the Automobile Club of America would select Albert C. Bostwick as its representative at the challenge race for the Bennett International Cup in France on June 14, but a surprise was sprung on the young millionaire autofan and his friends among the directors by the nomination and election by a small majority of Clarence Gray Dinsmore, with John H. Flagler as alternate.

Mr. Bostwick has been the chief worker of the club, having really brought about the American challenge for the cup, being the leading promoter of the club runs and standing at the head of the committee having in charge the coming automobile show at Madison Square Garden, and as he was going abroad on the 18th it was generally conceded, up to the meeting time, that he would be the chosen one.

The young millionaire, however, accepts the disappointment of his defeat in a sportsmanlike fashion and says the club has made an excellent choice in his friend, Dinsmore, who will have the advantage of speaking French fluently. Mr. Dinsmore will probably sail this week and Mr. Bostwick will sail as originally intended on the 18th. The latter has been proposed for membership in the French

Automobile Club, so will be eligible to compete in the club races.

There is to be a congress of all the national automobile organizations held in Paris about the time of the race and it is probable that an international association such as unites the various national cycle racing associations will be formed with fixed international rules and annual contests as the likely outcome. Mr. Bostwick will probably be elected a delegate at this congress to represent America.

TESTING HORSE POWER

Already the motor people are discussing some practical method of finding the actual horsepower of a motor easily and cheaply, says Frank N. Bemis in the Boston Post. To the expert, with machines and delicate instruments, this is easy, but some method will have to be found to do away with the controversy sure to arise in motor racing when any two or more men agree, or are compelled, to ride with equal motors. The idea is the same as that embodied in the one-design yachts, where skill in handling wins. Put one man with a 2¼ horsepower motor against one with a 3 horsepower motor and you have not a race, but a procession.

Take two motors of equal dimensions, supplied with gasoline of the same test degree and ignition outfits of equal reliability, and put on them two men to race, and the man who knows better how to handle and nurse his motor will win. The idea of all healthy competition is that a man shall win because of superior strength or skill, or both.

Dudley Marks, probably one of the best informed motorists in the country from a racing standpoint, proposes that a portable platform be provided at the race tracks, on which a tricycle, motor cycle or motor tandem may be fastened, with its driving wheel or wheels in contact with a roller that is free to revolve upon ball bearings. From this roller he would lead a belt to a small dynamo, and in the circuit he would include an amperemeter.

By starting the motor and taking readings every minute, or at the end of any number of minutes, by certain electrical and arithmetical formulae, much simpler than the words sound, the actual horsepower of a motor could be figured out with reasonable accuracy. It would be far more accurate than a rating figured with calipers and an inch rule, because it would take into account all the frictions and factors, including even the missed explosions and faulty mixtures which lower the horsepower.

It would practically show just what the motor was capable of doing when jacked up. Of course the horsepower would be less or more while running on a track, but this would be the case equally with two machines, so that for comparisons Mr. Marks' method would be very accurate.

NEW MOTOCYCLE RECORDS

Gaste broke several motocycle records on March 18 on the road. The kilometer standing start was covered in 56 3-5 seconds, against Beconnais' former time of :59 2-5. Gaste then equaled the mile records. The mile standing start was made in 1:23 1-5, against 1:15 1-5 for the mile flying start. Neither of the two kilometers standing and flying starts were equaled by Gaste.

Eli Winesett is trying to secure motor teams for racing this spring at Atlanta and Birmingham. The racing men don't care to journey south without a guarantee, and therefore are giving the requests of Winesett the go-by.

Everitt Ryan has signed to ride a fifteen mile motor paced race against Stuart Bolting at Fall River, Mass., April 19, Bunker Hill day. Ryan has secured Henshaw and Hedstrom with their typhoon motor cycle to pace him. He rode as an amateur last season and in the great amateur hour race at Berkeley Oval, lowered the fifteen, sixteen and seventeen mile world records.

Henri Fournier, the great French motor cyclist, now in France, introduced motor cycle pacing into this country. He was a star member of the team of forty men which crossed the continent a year ago last January to compete in the six-day and other races. When the party reached San Francisco and emerged from the station the cabbies waved their hands, held them out and shouted "Keb, keb" most enthusiastically. Fournier could not speak English, and an open hand was an invitation to shake. He supposed this a noisy reception committee of the wild and woolly west, and strutted proudly along that great line shaking hands

with each man in turn. Each naturally concluded he had a fare, and Fournier was nearly mobbed before he was rescued.

Earl Kiser and Tom Cooper will secure a motor tandem providing they conclude to remain in America. Both will go into pace following races of the shorter nature, and together they will enter the motor cycle contests of the season.

Kenneth Skinner has secured the sole agency for the De Dion motors, so generally used on the motor tandems, for the United States, and will open stores in every large city. He has one at 268 Massachusetts avenue in Boston, and Charlie Henshaw is working for him as a salesman. Henshaw will race this season just the same.

Motor cycle racing men are training quite as hard for their season of work as though they intended to engage in single racing altogether. The added speed of the motor cycles makes little difference to them this season, for they realize that it will be necessary to add to the speed of the machine, their own speed oftentimes, to win a contest.

Up at Waltham the Waltham Mfg. Company is busily engaged filling rush orders from racing men for tandems. Charlie Turville, B. B. Stevens and Archie McEachern of Philadelphia have ordered their machines. McEachern has ordered two. Stuart Bolting of Providence secured a motor some time ago and has been in steady training at New Orleans for two months, preparing for his debut as a professional on April 19.

Floyd McFarland succeeded in disposing of one of his last season's motor tandems to Iver Lawson and John Chapman, who will tour through California, Oregon and Washington to British Columbia for May and June racing, going to Salt Lake City in July, and thence East in August. They intend to take with them two motors, and as they are in a country where the machines are entire novelties, they expect to make money.

Billy Brady always thought Fournier about the nerviest man who ever lived, and even Brady worried over the dare devil rides of Fournier on the little indoor tracks. One day at 'Frisco, Fournier rode at top speed up the bank and missed the edge by but a few inches. Brady got excited, as he considered the chance of losing his attraction by an accident. He told Fournier he must not do that, and Fournier shrugged his shoulders. "Not so far," said he, indicating the inches; "not the slightest danger, no, not at all." Brady said nothing, but did a lot of thinking. Last season Fournier had a number of falls, and that took his nerve. He lost the main part of it, and for that reason the racing men fear falls more than anything else, as they do not care to lose that nerve which now means so much to them with a great season before them.

Chairman Batchelder of the National Cycling Association Board of Control has given the riders a pointer that they must secure motor cycles or lose money this season. Nearly every inquiry for sanction has contained a request for information regarding the new rules of motor cycling, and it is undoubtedly a fact that nearly every meet will have a special race of this character.

Harry Elkes's father writes from Paris that experiments in the substitution of motor tricycles for motor tandems as pacemakers in middle distance runs have been so successful that the old style will probably be abandoned for the new on the foreign tracks the coming season. He says that the bicycle riders find them much easier to follow by reason of the greater protection and the stronger draft secured.

Hogel and Englehardt, two New York boys, lately returned from Havana, Cuba, where they wound up a winter's trip with their motor through the south. They went to Cuba with two Atlanta boys who took the yellow fever and almost died. With but their one motor they could do but little, but managed to secure an exhibition, which drew 8,000 people, and paid them $100, after which they sold their motor for $400 and came home. The experiences of these men would easily fill a book if related in full.

Nearly a dozen of racing men who had been working in the factory during the winter, walked out last Saturday night, but it was not a strike, and the Orient makers did not worry. The balmy spring months had come once more, and these men wanted to start their training. Harry Caldwell, H. P. Kent, Austin Crooks, Williams and many more joined Henshaw, Hedstrom, Arthur Porter and Everitt Ryan in their daily road work, ten to twenty miles morning and afternoon. Waltham is the home of a score of good men who will take to the track this month and race steadily.

The good old times when bicycle pacing machines were many and various and also expensive and when the securing of the mile record meant a winter of training, an immense and expensive pacing team and so on were brought to mind the other day when the courts in Los Angeles gave the firm of E. C. Stearns & Co. judgment for $5,000 and costs in the suit against the Santa Fe Railroad for the destruction in 1896 of the entire pacing outfit of the Stearns-Palmer racing team which was then travelling from Santa Monica to San Diego to put Kiser through

for the mile record, something it did not succeed in doing although over $8,000 was burned up that winter. The railroad has taken the case to a high court, and it is not yet settled. The machines burned included a sextuplet, one of the ancient machines which seated six men, triplets and tandems. Nowadays one man goes out with one motor team of two men and one motor cycle costing say $600 and does on the Eastern track that which it used to cost $8,000 to $10,000 to do. He now does it in a month when it then was formerly necessary to spend a winter at the job.

Motorcycle racing will bring back to the sport hundreds of riders who once took part as pacemakers with the multicycle teams. Motorcycles will be so many that good nervy men must be obtained to steer them for the pace followers.

Your sprinter of 1900 will also be a pace follower, he will take a flier too in the motorcycle field and will ride pursuit races, and even engage in pursuit racing. But this is not all, for he will be found up in an auto from time to time. It is going to be a great racing season, with lots of money for the ambidextrous rider.

In the handicap motor tandem and motor paced races of the early part of the season the wisest handicapper will be all at sea. The motors themselves will have to be taken into account in this style of handicap racing, and will have to be named when entering a middle-distance race, although there be a limit of 2¼ horsepower.

Those rules for motorcycle and automobile racing will be finished at the meeting of the National Cycling Association Board of Control to be held at Buffalo, April 21. Chairman Batchelder has on his desk a great lot of suggestions for the new rules and these will be considered by the board at the meeting, shortly after which they will be drafted regularly and sent to the printer.

Frank Starbuck has two motorcycles. Starbuck is a veteran whose ill luck followed him for many a year. In his pace following he never had backing or pace. He is now provided with his own team and is after them all, both great and small, with a challenge to race. In '97 when properly trained and paced, "Star" beat Michael, and he was the only man to do it.

There is a question which is bound to create a lot of trouble this season, and that is the transportation of the large number of motors which will have to be carried along the circuit. These machines take up so much room that six to eight of them will require a special baggage car and a lot of diplomacy in dealing with the railroad men. The big boxes may be taken as baggage when the party is large enough, for it has been done many a time in the past. Otherwise the express companies will take them at the track and deliver them at the next track for a small additional cost to that entailed, by paying the transportation to and from the tracks at both ends of the line.

There is reported to be a scarcity of 2¼ horsepower motors,and racing men will have nothing else. Several orders have not been filled as promptly as the racing men would have liked. Hedstrom holds several frames for motors which have been promised him within a month.

Archie Hughes, the Syracuse dealer, has organized a ten thousand dollar company for the erection of an eight lap Coliseum track at Onondaga Lake, near Syracuse. Motor cycle racing will be planned for quite as much as cycle racing, and some of the followers of the latter game may find the banks a bit steep.

Frank Waller will take his two motors, his racing men and himself to Louisville this week to enter training for the season. Waller will pace W. C. Stinson and another rider, who has been dubbed an "unknown" this year and will not race himself. He will have W. F. Stafford associated with him in his private racing venture.

If there is one man who is eagerly sought, that man is Jack Prince. New Haven, Saratoga, Syracuse and Atlantic City all want him. Prince has the ability to construct small and very fast tracks and the ability to run races. He is almost alone in his field, having built tracks throughout the south, the west and the east, all of which were successful. Prince leaves Los Angeles April 10.

The information that American motorcyclists had been barred as pacemakers from the French tracks, did not worry the motormen at all, as none of them possessed any desire to cross the water to compete there or to pace any one. Henshaw and Hedstrom had intended to go over to pace Elkes and Ross, but had changed their mind before they received their notice not to come.

Little Arthur Ross, the Jerseyite, won the hearts of the French enthusiasts in his first training spin back of pace. His size, position and general appearance excited the Frenchmen as nothing else had done since the days of Michael, and thousands rallied to the banner of the little American. Frenchmen don't know where New Jersey is, but they do know that Zimmerman came from there and Ross hails from the same place, which is sufficient to win him a place in the hearts of those who admired the "Le Grand Zimmerman. New Jersey, in the estimation

of the Frenchmen, is the breeding place of fast cycle riders.

Albert Champion, the chauffeur, has until May 3 to return to France. Should he return before that time he will enter the army for three years, if after that time, the jail for ten years. Champion is not worrying, for he is in America to remain permanently, as he will have to do. His wife has joined him here, arriving from France quite recently.

John A. Blaurock, President of the National Cycling Association,is gathering a fine lot of French autos to bring back to America this summer for racing purposes, and, it is said, will bring with him Becannois, the great French chauffeur, who has a record of more than forty-three miles in the hour and who holds the world's records from one to one hundred kilometers.

There is a report current that Emile Bouhours, the great French pace follower, is to come to this country after the race of the Golden Wheel at Berlin May 20, to remain in America during June and July. He will return to France for the International championships. Cabialot, the clever steersman for the Marks-Cabiallot team which paced Tom Linton last season, is looking after Bouhours this season, and will accompany him to this side.

Out on the saucer bowl track at Los Angeles, an eight lap steeply banked affair. Hardy Downing rode a fifteen mile race at an average of 1:40 to the mile back of a motor tandem. Downing went three miles at an average of 1:37, and the machine pacing him had but 1¾ horsepower motor. The speed might be considered fast enough, but Downing was constantly yelling for faster pace. His showing in this race will place him in the pace following ranks this season from the outset.

Owen Kimble, proprietor of Fountain Ferry at Louisville, has contracted for two of the latest pattern motor tandems which will be used to pace the riders in training there, and for the early racing of the season. Kimble talks of races with a time limit of 1:35 to every mile, but it is highly improbable that Fountain Ferry will permit that pace. Joe Judge says that it will not permit lower than 1:40. Perhaps Judge may be wrong, as away back in the spring of '95 Mike Dirnberger was paced for the mile record on May 31, and made it in 1:45, with the heaviest quad team ever known.

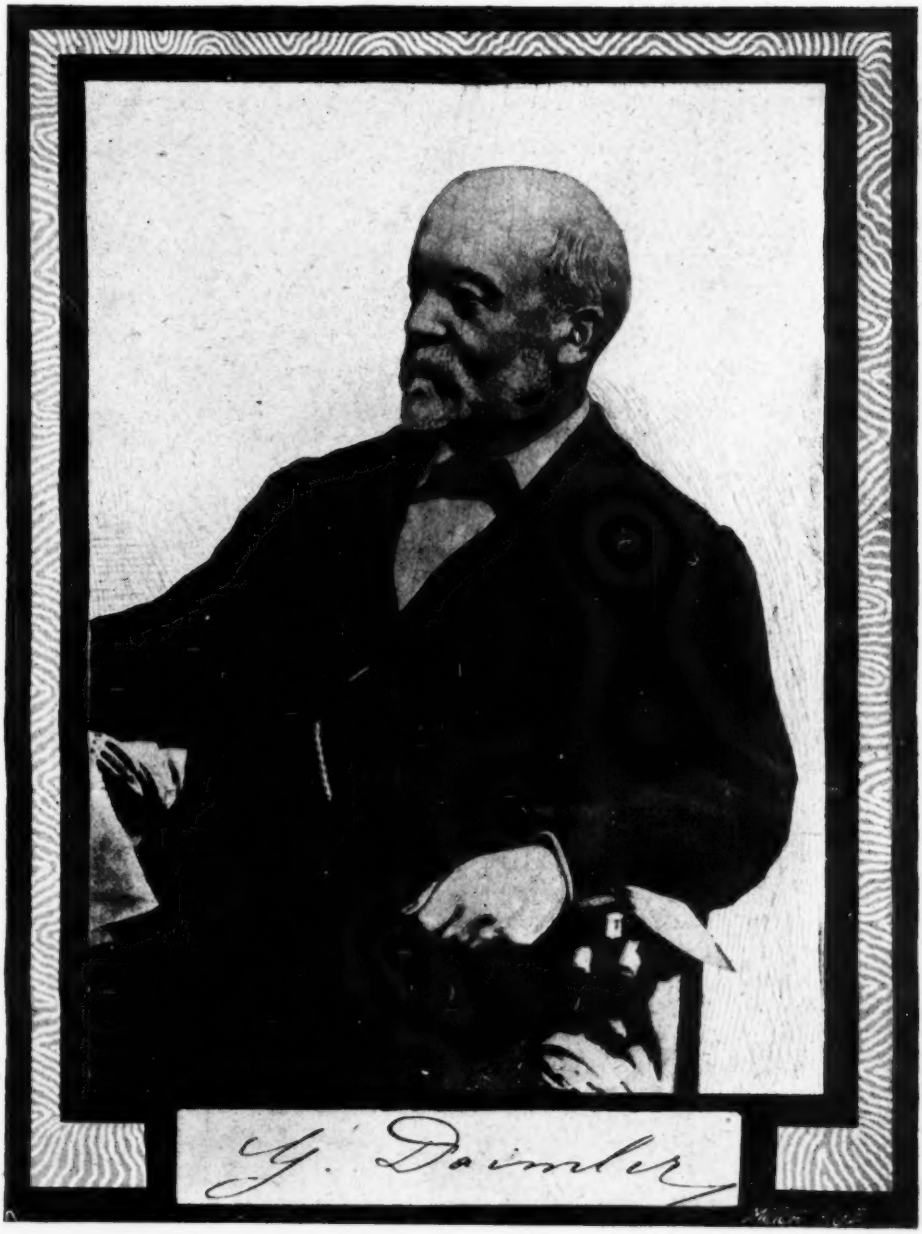
Individuality enters as largely into motor cycle racing as into single racing. The fact was demonstrated at Los Angeles when McFarland, Stevens, Freeman and Downing left there for a two weeks rest at San Jose. The men remaining had motorcycles, but were not as popular with the people who failed to attend. Upon the return of the quartet for a three nights meet the attendance again picked up, and Manager Prince was most anxious to keep them there. When they could remain no longer, Prince decided to close up shop and go east.

The motor tandem riders say that human power adds about thirty seconds to the speed of the machine. Riders of 1¾ horsepower motor tandems say that coasting brought them through a mile in two minutes or thereabouts, and that with their own power they easily went down to 1:30. This fact rightly demonstrated with officials would add greatly to the interest in motor cycle racing, as many believe that the power of the motor shoves the machines, and that the riders work the pedals merely because they accustomed themselves to doing so when riding bicycles.

Charlie Miller, the long distance champion and second in last season's pace following brigade, is training now at the Garfield Park cement track in Chicago, where Major Taylor rode his mile in 1:19. Miller has secured John West to prepare him for the season. West believes that back of pace his champion is invincible, and may be induced to again travel, in order that he may back him to the limit. Miller is provided this year with the very fastest motor cycle pacing machines, having imported them from France. One of his machines will travel forty-eight miles an hour.

Albert Champion, the Frenchman, was arrested the other day for fast riding on the streets of Cambridge, where he is training for his one hundred mile tricycle race with Kenneth Skinner. Champion has not mastered English sufficiently to speak it fluently when very much excited, and several riders who witnessed the incident say that it was funny to see him rattle French and English and wildly gesture to give weight to his protests. The policeman himself laughed, but took Champion along to the Judge, where he doubtless explained satisfactorily his breaking of the laws.

Harry Elkes, the American champion, Edouard Taylore, the French champion, Arthur Ross, the young American, Emile Bouhours, the great French middle-distance racing man, and Kocher, the German pace follower, have been signed for the race of the Golden Wheel at Berlin, May 20 to 24, four days,—three hours a day. A. E. Walters, the great English middle distancer, will also be a competitor. Elkes says that the pace will be something fearful, as motor triplets and tandems with 4½ horsepower double motors are being used. Elkes says that the pace will be over twenty-five, and probably thirty miles an hour for the entire distance.



THE LATE HERR DAIMLER—THE FATHER OF THE MOTOR VEHICLE.

NEWS OF THE MOTOR INDUSTRY

LEWIS MOTOR CO.'S AFFAIRS

The controversy over the management of the Lewis Motor Co. grows apace, says the Philadelphia Inquirer. About seventy-five shareholders who met on Thursday night to consider the condition of the company came to the conclusion that its affairs should be wound up, but this action is regarded as premature by the more conservative element, which desires to await the reports of the officers, which will be submitted at the annual meeting next week.

About $93,000 was realized upon the $500,000 of preferred stock which was issued, only $10 being paid in on each share of the par value of $50. One share of common stock was given as a bonus for each share of preferred. The inventor, George W. Lewis, was paid in common stock for his patents, of which he turned over to the company twenty-three. A block of 1,400 shares was used to pay for an equity in a factory building on Canal Street above Girard Avenue, and in this way $4,500,000 of common stock was issued. There has been paid out at the factory about $25,000 and the officers of the company say that they have not received anything for their services. A contract was made with Mr. Lewis by which he was to be employed for three years, but he and the officers had a disagreement and the inventor now threatens to bring suit for salary. He claims that under his patents a perfectly practical machine can be constructed, and it may be that out of the disagreements and the annual meeting a very businesslike proposition may develop which will be beneficial to all the parties concerned.

The following communication was received from Mr. Lewis yesterday:

Having noticed an article in The Inquirer concerning the annual meeting of the Lewis Motor Vehicle Co., which is set for Monday next, I think it my duty, in justice to the best interests of all concerned, to make a reply. The article states: "The inventor, of whom the patents were obtained, has not been able to reproduce an automobile which was up to the standard of the one which he exhibited." Now with all due respect to the judgment and ability of the writer, I will say that every man of experience in the line of mechanics knows that when once a machine of any kind is made that another can be produced.

The article also states: "The company's foreman, however, had worked faithfully in an effort to perfect the machine and he is said to be on the road to success." The facts are that the foreman was discharged two weeks ago. I, George W. Lewis, am the inventor and patentee of the Lewis motor vehicle, and have had nearly twelve years' experience in this line of work, and I do understand all I claim to know. There is said to be two sides to every question, and I believe, if investigation is made, two sides may be found to this one. My share of common stock is but five per cent of the whole, and represents of my hard earnings about $35,000; that is, I had paid out this much in experiments on the motor and vehicle. In other words, the automobile exhibited here, on which the Lewis Motor Vehicle Co. was organized, cost the inventor about $35,000 to reach that state of perfection. Many words of encouragement were spoken and the future made to look very bright, and understanding that I was to superintend the construction and have the business practically under my control, I entered the organization with all my might, in good faith, knowing that if the proposed plans were carried out I could make the business a grand success for all who might become interested.

There is a great future for the automobile, and I, as the inventor of the Lewis automobile, would be pleased to meet the preferred stockholders of the Lewis Motor Vehicle Co.

GEORGE W. LEWIS.

DISPUTED SALE OF PATENTS

New York, March 31.—Notwithstanding the insistent publication of the statement that Lawson, the Englishman, before he returned to Europe last week had sold to the American Bicycle Co. his gyroscope, an official closely connected with the automobile department of the cycle trust declares he knows of no such deal having been completed. A newspaper man close to Lawson during his stay in this country insisted to a Motor Age man, however, that he had seen Lawson's contract of sale to the A. B. C.

It is a fact that recently Harry Lozier, of the Cleveland factory, brought on a French tricycle fitted with a gasoline

motor, invented by Burwell, whose chains, bearings, etc., have been features of the Lozier bicycles, and on the strength of their estimate of its value it was decided to build a thousand machines of the tricycle and quadricycle type so fitted.

As has been previously stated in Motor Age, the Pope people have been experimenting for some time with an American motor, and a representative of this paper was told at Hartford that the manufacture of tricycles and quadricycles fitted with it would be at once begun.

The American Bicycle Co., by the way, is to devote a part of its big G. & J. store on Eighth Avenue to the display and sale of the Indiana Bicycle Co.'s electric automobiles, a shipment of five or six models being now en route. These are said to have been greatly improved over the vehicles shown at the cycle show, which were of older patterns.

AUTOMOBILE STAGE LINES

The present indications point to the automobile becoming a great factor in the economy of public transportation in the very near future. Leaving out of consideration of the question the automobile public cabs, which are already numerous in several of the larger cities, there are a number of stage lines being projected and some already in operation.

The Baltimore & Ohio railroad has adopted them for service in Washington and expects to enlarge the system, to embrace other cities.

Franchises have been granted in Boston, Chicago and several other large cities for motor-vehicle stages.

New York has already seen the partial conversion of its antiquated Fifth Avenue line into an automobile line.

A franchise is under consideration by the authorities in Richmond, Va.

The stage line plying between Litchfield and Torrington, Conn., is changing its motive power from horses to that contained within the vehicles.

A line will soon be running at Champaign, Ill.

The Sparks Automobile Co. is negotiating for a plant at San Jose, Cal.

At Chattanooga, Tenn., a company has been organized and order placed for a vehicle to run between the city and a suburb.

The citizens of North Muskegon are waiting the advent of an auto already ordered to connect that town with Muskegon proper.

At Meadville, Pa., the first of a number of vehicles ordered is being anxiously awaited.

At Clairsville, O., negotiations are on for a vehicle for passenger transportation.

THE FIRST MOTOCYCLE STORE

Boston, Mass., April 1.—The Hub now has what it claims is the first motor tricycle store in the country. It was opened formally to the public last Wednesday by Kenneth A. Skinner at 268 Massachusetts avenue and a full line of the De Dion product, including a voiturette, was inspected by a big throng of Bostonians.

Mr. Skinner received the voiturette last week and told the writer that he could have sold it four times for cash within six hours after its arrival, had he been willing to dispose of his sample. This is an instance of how little the field has been scratched, even in Boston.

With Mr. Skinner are associated Chas. S. Hensbaw and Harry Caldwell, of racing fame, whose duties are more pedagogic than commercial. The plan of the depot is not only to sell motors, tricycles, quadricycles and other vehicles, but to teach the would-be autofans how to manage the motors and keep out of trouble. Light vehicles will be rented, stored and repaired and a complete line of motor parts, including ignition plugs, is carried.

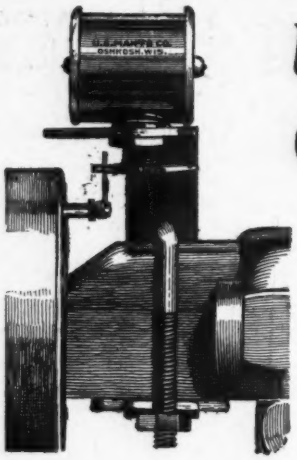
The floor space is large enough for a beginning and the store has large folding doors and a wide show window.

Everyone who desired was given a free ride on the day of the opening and a large number of orders was booked.

NEW CORPORATIONS

The following companies have recently been incorporated:

The United States Long Distance Automobile Co. under the laws of New Jersey, with an authorized capital of $1,000,000,



U. S. ODOMETER

ACCURATE
DURABLE

FOR CARRIAGES AND AUTOMOBILES.

The U. S. Odometer registers the distance travelled. Everyone using a carriage of any description will be interested in this instrument.
Liverymen, physicians, "speeders," etc., will find the "U. S." of great practical value.
No one can guess with any accuracy the distance travelled. The little silent "U. S." does no guessing. It tells the truth.

Right hand wheel shows tenths of a mile.
Reads plainly from seat of carriage.
Easily attached to front axle.
Provided with mud cap for wet weather.
Made for all sized wheels from 20 to 50 inches, varying by ½ inch. Sizes most used—38, 40 and 42-inch.
Give diameter or circumference of front wheel when ordering.
Fully guaranteed.
Water and dust will not injure it. All parts are made of a non-corrosive material.

REGISTERS 10,000 MILES

PRICE.....$2.25

U.S. Manufacturing Co.
5-9 Light Street - OSHKOSH, WIS.

divided into 1,000 shares of preferred stock and 9,000 shares of common stock.

On Thursday last the Edie Mac Automobile Co. of Reading, Pa., absorbed the bicycle plant of Irvin D. Lengel of that city and will embark at once in the manufacture of steam automobiles on a large scale. The capital stock of the combination is $250,000.

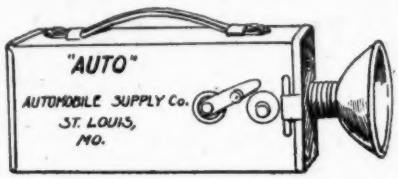
The Milwaukee Automatic Machine Co. are in position to do all manner of special work for automobile builders. The company has a large factory equipped with the latest and most automatic machinery, and, having long experience in turning out special work of all styles, is capable of doing the work promptly, accurately and in a workmanlike manner.

Eddie McDuffee, the great bicycle pace follower, has arranged to open a store for the Locomobile Co. of America at Fifth Avenue and Forty-second Street, New York, and will be ready for business by April 5. McDuffee says that it is not essential now that he ever ride a wheel again, but believes that the present season will be one of the best ever known. He will return to the track, providing he sees prospect of enough money, leaving his business for the racing season in the hands of others.

Joseph J. Mandery, the proprietor of the Rochester (N. Y.) Automobile Co. likewise a bicycle dealer, appreciates the value of advertising. In addition to being a liberal patron of the advertising columns of the Rochester papers, he has used rare discrimination in producing attractive advertisements, and has provided a supply of artistic and convincing printed matter for distribution to prospective customers.

"Bob" McCurdy, the well known Philadelphia racing man, has accepted a position with the Locomobile Co. and is now at the factory, where he will devote the next two months to studying the details of the steam wagon. Later in the season it is possible that he may double up with Eddie McDuffee and steer the famous "choo-choo" which the latter is anxious to race against the best gasoline tandem that can be produced. McCurdy is one of the most heady riders on the track today and a worthy mate to the fearless Edward.

THE "AUTO"



ELECTRIC LAMP

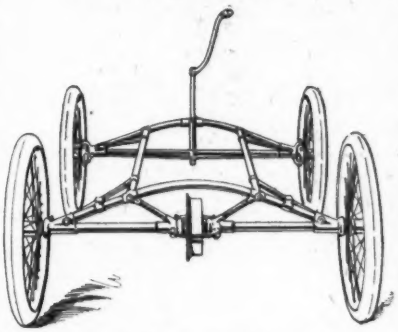
Can be used with any style vehicle. Throws light 100 feet. Uses dry cells. Weighs but 18 ounces, and is but 6½ by 3 by 1½ inches in size. Can be carried in the pocket. Convenient in time of breakdown or accident at night.

AUTOMOBILE SUPPLY CO.
ST. LOUIS, MO.

WHY BOTHER

To Build RUNNING GEARS?

Save time, experiment, expense and trouble by buying ours complete.



They are ready for enameling and wheels and will take any carriage body with springs, motor, tanks, etc.

—WRITE US—

MILWAUKEE AUTOMOBILE CO.,
19th St. and St. Paul Avenue,
MILWAUKEE, WIS., U. S. A.

INSIST ON SOLAR AUTOMOBILE LAMPS AS EQUIPMENT ON YOUR VEHICLE.

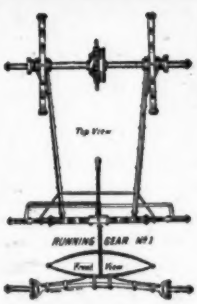
BADGER BRASS MFG. CO. KENOSHA, WIS.

WE MANUFACTURE
SPROCKET WHEELS

in all sizes and thickness, for any pitch chain; also miscellaneous parts for

Bicycles and Automobiles

PETER FORG, - SOMERVILLE, MASS.



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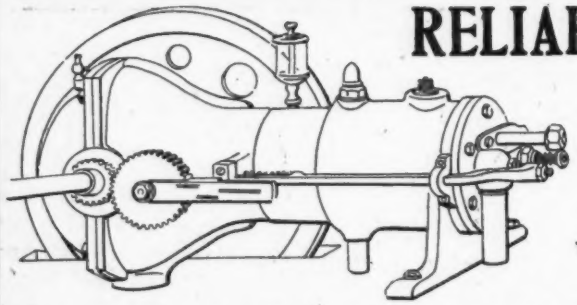

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